income tax and excess profits tax. Money so allotted by traders must be devoted to a research or to an association for research under partial State control.

Speaking next on the subject of technical education, Lord Crewe said there had been conferences with local authorities with the view of bringing the conditions under which public money was granted to educational institutions more up to date. The new regulations would simplify administration and stiffen instruction. Special increases would be made in the Estimates of the Board of Education to assist local authorities, and improved arrangements would be made for the training of teachers and for scholarships for selected industrial students.

There would also be (in addition to the block sum to cover five years' expenditure mentioned above) an annual Vote in the Estimates for various purposes, and a sum would be set aside to meet cases in which assistance was required by the individual worker, or by professional societies which stood in need of funds to carry on research work.

Sir J. J. Thomson, on behalf of the deputation, thanked Lord Crewe for his address.

The following official statement has been issued as to the constitution of the new department:—

The Government have decided to establish a separate Department of Scientific and Industrial Research for Great Britain and Ireland under the Lord President of the Council, with the President of the Board of Education as vice-president. They have also decided, subject to the consent of Parliament, to place a large sum of money at the disposal of the new department to be used as a fund for the conduct of research for the benefit of the national industries on a co-operative basis.

The Board of Inland Revenue have decided, with the approval of the Chancellor of the Exchequer, that no objection shall be offered by their surveyors of taxes to the allowance, as a working expense for income-tax purposes, of contributions by traders to industrial associations which may be formed for the sole purpose of scientific research for the benefit of the various trades; and the allowance would be equally applicable as regards traders' contributions specifically earmarked to the sole purpose of the research section of an adapted existing association.

In both cases the allowance would be subject to certain conditions, *e.g.* the association or the research section to be under Government supervision and the trader's contribution to be an out-and-out payment, made from his trade profits and giving him no proprietary interest in the property of the association, etc.

In order to enable the department to hold the new fund and any other money or property for research purposes, a Royal Charter has been granted to the official members of the Committee of the Privy Council for Scientific and Industrial Research under the title of the "Imperial Trust for the Encouragement of Scientific and Industrial Research." The trust is empowered "to accept, hold, and dispose of money or other personal property in furtherance of the objects for which it has been established, including sums voted by Parliament to that end." The trust can take and hold land, and can "accept any trusts, whether subject to special conditions or not, in furtherance of the said objects."

A substantial gift has already been made to the trust by two members of the Institution of Mechanical Engineers for the conduct of a research in mechanical engineering to be approved by the department in the hope that this example will be followed by other members of the institution.

Mr. H. Frank Heath, C.B., has been appointed permanent secretary of the new department, to whom all correspondence should be addressed until December 31 next at the offices of the Board of Education, Whitehall. On and after January 1, 1917, all correspondence should be addressed to the Secretary, Department of Scientific and Industrial Research, Great George Street, Westminster, S.W.

NOTES.

PROFS. PAUL PAINLEVÉ, of Paris, and Vito Volterra, of Rome, have been elected honorary members of the Royal Institution.

THE sum of 1000*l.* has been left to the Paris Academy of Medicine by Dr. Magnan, a former president of the academy, for the foundation of a triennial prize for the best work on a subject relating to psychiatry.

A COMPETITIVE exhibition of artificial limbs is to be held in Bologna in February next, and the Rizzoli Orthopædic Institute of Bologna, under the auspices of which the exhibition is to take place, offers a prize of 200*l.* in connection with it.

A NEW medical periodical entitled *Archives médicales belges* is to be published at the beginning of next year. It will contain reports of the medical work done by exiled Belgians, and be issued by the medical department of the Belgian War Ministry.

MR. F. W. LANCHESTER, the new president of the Junior Institution of Engineers, will deliver his inaugural address to the institution on Monday, December 11, on "Industrial Engineering: Present Position and Post-War Outlook."

A COMMITTEE has been appointed to promote a memorial at the Middlesex Hospital to Mr. F. Clare Melhardo, late secretary-superintendent of the hospital. The memorial is to take the form of the raising of a fund for the permanent endowment of the Bland-Sutton Institute of Pathology.

ADMIRAL SIR HENRY JACKSON, K.C.B., F.R.S., First Sea Lord of the Admiralty, has been appointed to the vacant post of President of the Royal Naval College, Greenwich, and has been succeeded as First Sea Lord by Admiral Sir John Jellicoe, K.C.B.

WE regret to announce the death, on November 30, at a nursing home in London, of Prof. J. Wrightson, president of the College of Agriculture, Downton (1880–1906), honorary professor of agriculture at the Royal Agricultural College, Cirencester, and professor of agriculture and agricultural chemistry in the Royal College of Science, South Kensington, from 1882 to 1898.

DR. ERIC MJÖBERG, assistant in the Entomological Department of the Swedish State Museum, has received leave of absence for three years in order to prepare and conduct an expedition to the interior of New Guinea. His intention is to penetrate into the country by aeroplane, taking as his starting point one of the small islands in Geelwink Bay, at the north-west end of the country. Dr. Mjöberg recently left for America to carry out a lecture tour by which he hopes to raise large sums to cover some of the heavy expenses of his expedition.

THE annual meeting of the Hakluyt Society was held last year on November 23 at the house of the Royal Geographical Society. This year marks the tercentenary of Hakluyt's death, and the president of the society, Mr. Albert Gray, in the course of a commemorative address, remarked that investigations are being made for the purpose of discovering Hakluyt's birthplace. Nothing seems to be known of his father or mother, but there is a monument to his wife in Ludlow Church. The society hopes to find the original manuscript of a treatise by Hakluyt that was printed in America from a copy.

THE Walter and Eliza Hall Institute of Research in Pathology and Medicine has been established in Melbourne in connection with the Melbourne Hospital, through the generosity of the trustees of the Walter and Eliza Hall Fund. The institute is controlled by a board representing the trustees, the University of Melbourne, and the Melbourne Hospital. A spacious building, including a basement and three stories, has been erected at a cost of more than 10,000*l.* in immediate connection with the pathological department of the hospital. The hospital itself has recently been entirely rebuilt, and now contains 325 beds. Applications for the office of director of the institute are being invited through the Agent-General for Victoria, from whom full information may be obtained.

DR. EUGÈNE L. DOYEN, the well-known Parisian surgeon, died on November 21, aged fifty-seven. He was the author of a number of surgical treatises, the better known being "Traitement Chirurgical des Affections de l'Estomac et du Duodenum" (1895), "Technique Chirurgicale" (1897), and "Atlas de Microbiologie" (with M. G. Roussel, 1897). His best-known work, however, is "Etiologie et Traitement du Cancer" (1904). In 1901 he discovered a micro-organism in cancerous growths which he regarded as the cause of such formations, and named it *Micrococcus neoformans.* He introduced serum treatment for cancer, and claimed he had discovered both the cause and cure of this terrible disease—a claim which other medical men, with the best will in the world, have never been able to confirm. At an early date (1898) he utilised the kinematograph as a means of demonstrating his technique and his personality to medical students. He was an enthusiastic worker, but never succeeded in gaining scientific support for his many claims and theories.

CAPT. H. FAIRLEY MARRIS describes a new test for typhoid and paratyphoid fevers, based upon the effect of atropine on the rate of the heart-beat. In a well person, or in one suffering from a number of diseases other than those named, atropine causes an increase of the pulse-rate by about twenty beats or more per minute. Should the pulse-rate increase only ten beats or less, infection by one of these diseases is suggested; if the increase is more than ten and less than twenty beats per minute the interpretation is uncertain. The method of applying the test is as follows. At least one hour after a meal should elapse. The patient should be horizontal and remain perfectly quiet. The pulse-rate is then taken and recorded minute by minute for about ten minutes. Then 1/32 grain of atropine sulphate is injected hypodermically, and after an interval of twenty-five minutes the pulse-rate is again taken minute by minute until it is obvious that any rise which may have followed the injection of atropine has occurred and that the pulse-rate is falling again to the lower level—fifteen to twenty minutes may be necessary (*British Medical Journal,* November 25, p. 717).

THE ninety-first illustrated Christmas course of juvenile lectures, founded at the Royal Institution in 1826 by Michael Faraday, will be delivered this year by Prof. Arthur Keith, his title being "The Human Machine which All Must Work." The following are among the lecture arrangements before Easter:—Prof. C. S. Sherrington, six lectures on the old brain and the new brain and their meaning, and pain and its nervous basis; Prof. W. E. Dalby, two lectures on the structure of metals; Prof. J. W. Gregory, three lectures on geological war problems; Prof. F. G. Donnan, three lectures on the mechanism of chemical change; two lectures by Prof. E. S. Prior; Prof. A. Dendy, two lectures on sponges: a study in evolutionary biology; Prof. J. A. Fleming, two lectures on modern improvements in telegraphy and telephony; Mr. A. R. Hinks, two lectures on the lakes and mountains of Central Africa; Mr. Daniel Jones, two lectures on the science of speech; Dr. C. W. Saleeby, two lectures on Imperial eugenics; Mr. Stephen Graham, two lectures on Russian idealism. The Friday evening meetings will commence on January 19, when Sir James Dewar will deliver a discourse on soap-bubbles of long duration.

SIR RALPH PAYNE-GALLWEY, who died on November 24, at sixty-eight years of age, was a very famous wildfowler, and it was on his knowledge of the habits and haunts of wildfowl, gained during many winters spent in their pursuit, that his claim to the title of an ornithologist chiefly rests. In his knowledge of the habits of these birds as observed by a fowler (who has the best possible chances of observation) he was perhaps unrivalled. The various kinds of fowl have many little peculiarities, all of which have to be humoured, so to say, if the fowler is to get within striking distance of them. Hence the necessity of a knowledge of the general appearance in the distance, distinguishing calls, and different flight of fowl, and the endless other characteristics of which no one but those who in winter have hied them to the coast with its myriads of wild, wary birds can have any idea. Sir Ralph's most important book, "The Wildfowler in Ireland," is full of out-of-the-way information of the kind to delight the naturalist, and as it was begun at sea with a heavy gale blowing there is a certain freshness about it. "The Book of Duck Decoys," an exhaustive work, and the only one on the subject, also contains a good deal about the natural history of ducks and the ways of the birds. For in this kind of fowling the birds are led rather than pursued. His other best-known work is the "Letters to Young Shooters," the third series of which contains a useful description of all the wildfowl met with in the British Islands. Sir Ralph earned the gratitude of those interested in the former state of our avifauna by having the ancient sign of the "Dotterel Inn" (which stands on the Yorkshire wolds) restored, after it had been sadly ill-used by a local artist who had repaired it.

WE regret to announce the death of M. Emile F. Maupas, librarian of the National Library in Algiers, in his seventy-fourth year. M. Maupas devoted his spare time to zoological researches, the results of which appeared in eighteen papers issued between the years 1876 and 1901. His memoirs on the multiplication and conjugation of ciliate protozoa (1883, 1888, 1889) made his name well known to all students of zoology. By careful and laborious experiments he determined the rates of fission of about twenty species of ciliates under varying conditions of food and temperature. He found that in his cultures—each of which was begun with a single ciliate—there occurred, after a certain number of fissions had taken place, a gradual reduction of the ciliary apparatus and a degeneration of the nuclei, which he regarded as indications of senescence, leading to cessation of fission and death. If, however, before such degeneration took place in any given culture, individuals of the same species, but of different origin, were introduced, conjugation took place. M. Maupas traced the nuclear interchange and the complete reorganisation of the nuclear apparatus, and concluded that this syngamic process determined rejuvenescence. Largely on account of his work, conjugation has been regarded as the sole panacea for protoplasmic old age and death. M. Maupas published, in 1890–91, brief accounts of his investigations on reproduction and sex-determination in rotifers, and in 1900–01 detailed researches on the moulting, encystment, and reproduction of nematode worms, in which, in addition to the descriptive matter, there are discussions on points of great general interest, *e.g.* that the diœcious, and not the hermaphrodite, is the primitive condition, and that sex is determined in the egg very soon after fertilisation, if not earlier. For these papers on nematodes M. Maupas was awarded a prize by the Paris Academy of Sciences in 1901.

DR. E. W. SCRIPTURE recently read to the Pathological Section of the Royal Society of Medicine a communication on registration of speech sounds in the diagnosis of nervous diseases, in which he described a method of recording speech sounds in the early stages of certain diseases of the central nervous system, such as sclerosis, and he claims that the tracings so obtained are almost an infallible mode of diagnosis. The method has been carried out in various institutions in London. It is evident that very slight modifications of the articulating mechanism may thus be detected, and it is remarkable that such modifications are characteristic of different diseases; thus an additional method has been placed at the disposal of clinical physicians, and this has come from the region of experimental phonetics.

PROFS. SALA and Verga deal with the diagnosis of the peripheral nerve-lesions in 150 cases of gun-shot wounds in a paper just received ("Le lesioni dei nervi periferici per ferite d'arma da fuoco," *Memorie del R. Istituto Lombardo di Scienze e Lettere,* vol. xxi.—xii. della serie iii., fasc. x.; Milano: U. Hoepli). The authors lay stress upon the practicability of ascertaining, by study of the disturbances of skin and bone sensation, and by the electrical reactions of the muscle and nerves, the precise seat of the nerve-lesion, and to some extent whether it involves rupture of structural continuity of the nerve or strangulation of it by cicatricial fibrous tissue. The large part played in the causation of paresis, whether of motion or sensation, by cicatricial bands constricting otherwise uninjured nerve-trunks in such cases is dealt with at length and fully illustrated. The utility of testing at the time of the operation the exposed nerve-trunk with faradism applied by platinum-pointed electrodes, as in the physiological laboratory, is dwelt upon, and shown to be productive of no harm to the nerve-trunks. The operative procedures for freeing nerve-trunks from fibrous bands compressing them, and for repairing disrupted nerve-trunks, are discussed. A full report of the success of the treatment adopted is promised for a later paper.

IN the November issue of *Man* Mr. H. D. Skinner traces an interesting link of connection between the Melanesian and New Zealand cultures in a description of three characteristic Maori weapons, known as the Hani, Tewha-tewha, and the Pou-whenua—all forms of a wooden club. In one form the carving at the lower end has been boldly designed and finely executed with stone tools. The point represents a human tongue ornamented with scrolls; above it are the teeth and upper lip, above which again may be discerned a diminutive nose, eyes obliquely set and inlaid with circlets of shell, and a beetling brow with conventional forelock. With these forms the writer compares a paddle club from the Solomon Islands, from which, compared with the ordinary paddle of the same group, the difference is slight, and every intermediate gradation of shape might be figured. From these facts he arrives at the conclusion that we are justified in claiming a Melanesian ancestry for the two-edged clubs of Rarotonga and New Zealand. The question arises: Did the three Maori forms differentiate themselves in New Zealand, or must their point of origin be placed oversea? From a consideration of the facts the writer reaches the conclusion that the differentiation of the Tewha-tewha form had already begun in Melanesia.

THE activities of the United States Board of Agriculture cover a wide field, and, happily, their behests are promptly attended to. Originally the preservation of wild birds was undertaken purely from the point of view of economic zoology. During recent years, however, the Board has taken over the charge of numerous and extensive reservations for the protection of birds to save them from the ravages of the plume-hunter and the egg-collector, and they have done magnificent work in this direction. How great are the difficulties of the Board, and how wide its powers, may be gathered from the statement in the *American Museum Journal* for October to the effect that news reached the officials that a Japanese poaching vessel had been seen in the neighbourhood of the Hawaiian Islands, where a reservation has been established. At once the Revenue-cutter *Thetis* was ordered to cruise to the bird islands. In due time the vessel returned, bringing twenty-three Japanese feather-hunters, captured in their work of destruction. In the hold of the vessel were stored 259,000 pairs of wings, 2½ tons of baled feathers, and several large cases of skins, for which the Japanese, had they escaped with their booty, would have realised more than a hundred thousand dollars. In Florida, we are glad to learn, the white egrets are slowly recovering from the ruthless slaughter to which they have been subjected, though the warden charged with their protection goes in daily peril of his life from desperate and lawless agents of the plume-trade.

THE course of lectures on "The Origin and Evolution of Life upon the Earth," delivered by Prof. H. F. Osborn before the Washington Academy of Sciences earlier in the year, is now being made available to a far wider public through the medium of the *Scientific Monthly.* The October number contains the first lecture of part iv. Herein the contrasts between plant and animal evolution and the origin of animals are discussed. The process of the differentiation of the invertebrate types of to-day, it is urged, "began in pre-Cambrian times, and among aquatic types, of which we have as yet very imperfect knowledge. The evolution of the terrestrial forms began with the Devonian, when the increasing verdure of the land invited the invasion of life from the waters, the first conquest of the terrestrial environment being attained by the scorpions, shellfish, worms, and insects. This is an instance of the constant dispersion of new animal forms into new environments for their food supply, the chief instinctive cause of all migration. This impulse is constantly acting and reacting throughout geologic time with the migration of the environment." This is an interpretation to which some at any rate will demur. Rather migration seems, in the first place, to come about as a result of overpopulation, when, to avoid competition, the individuals at the periphery of the range of the particular species in distress are compelled to extend farther afield. But be this as it may, these lectures provide most stimulating food for thought, and in their present form they have the further advantage of being most profusely illustrated.

THE failure of the North American wheat crop this year is causing some anxiety in the West Indies, as the islands rely entirely on this source of supply. It seems doubtful if the usual quantities of flour will be available, and the question of possible substitutes is receiving official attention. The *Agricultural News* (Barbados) of October 21 suggests that the cultivation of maize, Guinea corn, cassava, and sweet potatoes should be extended. All these foodstuffs are already grown in the islands, but, in contrast with the imported cereals, none of them will keep without special precautions; the sweet potato, the principal vegetable of the people, is particularly perishable. As regards corn, the difficulty can be overcome by drying, and the Governments of Antigua and St. Vincent have established kiln driers working on a co-operative basis. If the shortage of wheat flour should become serious, the rice crop of British Guiana will have to be drawn on to a greater extent than it is already, and the cultivation of this cereal, which is at present a large industry in Trinidad, may be further developed.

IN view of the shortage of potash by reason of the cutting off of the supply from German sources, two papers recently issued by the United States Geological Survey are now of especial interest. The first, "Evaporation of Brine from Searles Lake, California" (Professional Paper 98-A), records experiments by Mr. W. B. Hicks designed to discover an economical method of extracting the potash from the brine of Searles Lake. The latter is a bed of crystalline salts, containing in its interstices a brine which carries about 2·1 per cent. of potassium, probably in the form of chloride, sulphate, carbonate, and borate. The brine was fractionally evaporated and crystallised, the deposits formed during evaporation being kept separate from those resulting on cooling. As a result of a series of seven such evaporations and crystallisations, the author shows that only 8 per cent. of the potassium in the brine is separated, during either the evaporation or the subsequent cooling, when this is concentrated to one-half of its original volume. When the brine thus concentrated is further evaporated to about one-fifteenth of its original volume and cooled, more than 70 per cent. of the total potassium present is deposited, whilst 12–13 per cent. is left in solution. The second paper, entitled "Experiments on the Extraction of Potash from Wyomingite" (Professional Paper 98-D), is by Mr. Roger C. Wells. Wyomingite is a lava composed largely of the mineral leucite, which is a silicate of alumina and potash. The substance was subjected to levigation with water after crushing, was extracted with water in the presence of gypsum, was heated alone and with gypsum, sulphuric acid, potassium, hydrogen sulphate, alunite, calcium carbonate, calcium and magnesium chlorides, ammonium sulphate, and a bittern respectively. The results indicate that the most promising method would be to heat the wyomingite with 50 per cent. of its weight of alunite (a naturally occurring sulphate of alumina and potash found in the same neighbourhood as wyomingite), whereby 70 per cent. of the total potash (55 per cent. of that in the wyomingite) is rendered soluble.

A GENERAL survey of the coke industry of New South Wales is made by L. F. Harper and J. C. H. Minguye in Paper No. 23 of the New South Wales Department of Mines and Mineral Resources. Chemical analyses and physical properties are given for all types of coal found in New South Wales, and also unusually complete analyses of the coal ashes. Coke burning has been established in the colony for half a century, and is an important and growing industry, the production having risen from 304,800 tons in 1914 to 417,753 tons in 1915. A perusal of this report suggests, however, that the methods of the industry have not kept pace with modern coke-oven practice. Preliminary coal-washing is carried on to a very limited extent, although the ash content of the cokes is very high, and there is some laboratory evidence that washing would be serviceable. The sulphur in the coals and cokes is quite remarkably low, and might be even lower after washing. Unfortunately the survey has not included nitrogen content. The coking properties of the coals are good. A modified beehive oven is most commonly used for coking, rectangular in plan, but with arched roof. The coke is discharged by a ram and quenched outside the ovens. Heating is effected by burning part of the coke-oven gas in external flues, and in some plants the waste heat is collected for power production. The ordinary beehive oven is also in use, but only one modern by-product plant is in full operation (since 1915)—a battery of regenerative Semet-Solvay ovens at Newcastle, N.S.W., with semi-direct ammonia recovery and a benzol plant. Another battery of ovens of the Coppée type has been built in the neighbourhood, but trouble with refractory materials seems to have hindered its operation. Results obtained in the recovery ovens suggest that coking for by-products should have good prospects; the yields are stated as 30 lb. of ammonium sulphate, 3 gals. of benzol, 8 gals. of tar, 12,600 cub. ft. of gas (585 B.T.U.) per ton of coal. It is believed that these results may give a practical object-lesson on the possibilities of by-product coking in the colony, and do something to destroy the prejudices and conservatism evidenced by the general use of older, simpler, and cruder types of plant.

SCIENTIFIC PAPER No. 294, issued by the U.S. Bureau of Standards, gives an account of the accurate redetermination of the freezing point of mercury made at the bureau by Mr. R. M. Wilhelm. Temperatures were measured by means of three platinum thermometers standardised at 0° C., 100° C., and 444·6° C. About 40 c.c. of mercury were placed in a glass tube of 2 cm. inside diameter, and into it the bulb and a considerable length of the stem of the platinum thermometer were inserted. The mercury tube was surrounded by another glass tube of 3 cm. inside diameter, which was placed in a well-stirred freezing bath. In making a determination the temperature of the bath was maintained either a little above or a little below the freezing point of the mercury, and the slow change of temperature of the mercury owing to the transmission of heat across the layer of air between the two glass tubes was observed. At the melting- or freezing-point the temperature remained constant for ten to twenty minutes. Three different samples of mercury were used, and after purification gave identical results. The final result of the whole series of measurements is $-38{\cdot}873°$ C.

THE Journal of the Franklin Institute for November contains an account of some interesting work on riveted joints by Mr. Cyril Batho, of the McGill University. By means of the principle of least work it is shown how a series of equations may be obtained for any riveted joint, giving the loads carried by each of the rivets in terms of a quantity K, which depends upon the manner in which work is stored in, or by the action of, the rivets. A large number of experiments have been made with the object of determining the distribution of the stresses; from the results of these the author deduces that the extensometer measurements on the outer surfaces of the cover-plates of a riveted joint are sufficient for the determination of the mean stresses in the plates, and that the partition of the load among the rivets may be determined from such measurements. All the experiments tend to show that friction does not play an important part, but further experiments are necessary on this point. Experiments on a number of specimens having a single line of rivets gave results in close agreement with the theoretical considerations. An empirical rule for the value of K is given for joints similar to the experimental specimens. We can commend a careful study of this important article to any who are interested in riveted joints.

The *Journal of Anatomy and Physiology*, founded by the late Sir William Turner in 1866, will in future appear under the title *Journal of Anatomy*, and will be the official organ of the Anatomical Society of Great Britain and Ireland. In the preface to the first part of the fifty-first volume Prof. R. Howden, president of the society, remarks that until the year 1878 the journal was the organ of the two sciences, anatomy and physiology. In that year the *Journal of Physiology* was established, and thereafter physiological papers became few and far between in the joint journal, and finally ceased to appear. It has therefore been deemed advisable to drop the words "and Physiology" from the title. The editors of the *Journal of Anatomy* are Profs. A. Macalister, A. Thomson, A. Keith, and A. Robinson.

The catalogue of publishers' remainders just issued by Mr. H. J. Glaisher, 55 Wigmore Street, W., is full of interest. The works offered for sale at greatly reduced prices are new unless otherwise stated, and cover a wide field. Very many of the books deal with scientific subjects. Among them we notice:—Newton's "A Dictionary of Birds"; Galton's "Memories of my Life"; Spence's "Notes of a Botanist on the Amazon and Andes"; Mill's "The Siege of the South Pole"; Clerke's "The System of the Stars" and "A Popular History of Astronomy"; Cooke's "Introduction to the Study of Fungi," "British Edible Fungi," and "Handbook to British Hepaticæ"; Smith's "The Life of Sir Joseph Banks"; Bonhote's "Birds of Britain"; Amundsen's "The North-West Passage"; "The Angler's Library," five vols.; Gadow's "Through Southern Mexico"; Scherren's "The Zoological Society of London." The catalogue should appeal to readers of Nature in search of standard works at low prices.

On a previous occasion the attention of readers was directed to the excellence of the pads of "Acribo" sectional paper supplied by Mr. W. H. Harling, 47 Finsbury Pavement, E.C. He is now able to provide the paper printed on linen bank in three scales, and in this strong form the popularity of such a convenient, accurate, and British-made product should be increased.

OUR ASTRONOMICAL COLUMN.

The Zodiacal Light.—Mr. Denning writes us that displays of this light were surprisingly intense on the mornings of December 4 and 5. He has observed it on many hundreds of occasions, both at the morning and evening apparitions, but never remembers to have seen it more conspicuous. It stretched upwards from about E. by S., and its fainter limits were just traceable to the stars Regulus and γ Leonis in the Sickle of Leo. It was best seen at about 5.40 a.m., and as Regulus passed the meridian at Bristol at 5.23 and 5.19 on the mornings mentioned, the light must have extended over a considerable arc.

A New Comet.—A telegram from Prof. Pickering, received through the Centralstelle at Copenhagen on November 26, announces the discovery of a new comet by the Rev. Joel Metcalf on November 21. At Greenwich time 13h. 36·9m. on that day the R.A. of the comet was 3h. 38m., and the N.P.D. 71° 27′. No indication of the brightness or motion of the comet is given. The above position is located about 5° south of the Pleiades, which are now visible throughout the night.

The Search for a Transneptunian Planet.—Notwithstanding the failure of nearly half a century's systematic search for a planet beyond Neptune, M. A. Borelly, of the Marseilles Observatory, is still hopeful that such a planet may be discovered. The comet-seeker which he has mainly employed in his work on small planets has permitted the observation of stars down to the 12th magnitude, and M. Borelly is now inclined to think that the planet sought for must be of less brightness than this. He believes it possible, however, that the planet might be detected with the aid of the photographic chart of the heavens, which includes stars as faint as the 14th magnitude. If the period of the planet be a little more than double that of Neptune its motion would only be 1° per annum, or about 10″ per day, so that the short exposures which suffice to show the motion of planets between Mars and Jupiter would not be effective. The occurrence of what may be called Transneptunian comets, including the comets of 1532, 1661, 1862 (III.), 1843 (I.), 1880 (I.), 1882 (II.), is regarded as an argument in favour of the existence of planets outside the orbit of Neptune (*Jour. des Observateurs*, vol. i., No. 12).

Solar Prominences in 1916.—Admirable records of solar prominences are now being obtained under the direction of Mr. Evershed at Kodaikanal, and prompt publication of the results is a commendable feature of the work carried on. In view of the more satisfactory data relating to position angles, heights, and areas which are obtainable from the spectroheliograph photographs, the visual observations are now practically confined to displacements of the hydrogen lines and to metallic prominences. A summary of the observations for the first half of the present year is given in Kodaikanal Bulletin No. 52. Compared with the previous six months, there was a decrease of 22·6 per cent. in areas and an increase of 26·1 per cent. in the number of prominences, the average area per prominence having diminished by about one-third. The areas show a slight preponderance on the eastern, and the numbers a slight preponderance on the western, limb. Metallic prominences were observed in greater number than during the preceding half-year, and there was also a large increase in the number of displacements of the hydrogen lines observed at the limb. In observations on the disc 305 reversals of the C line, 34 darkenings of the D_3 line, and 103 displacements were recorded; there was a large preponderance of displacements towards the red. Absorption markings in H_α, attributed to prominences projected on the disc, were photographed on 147 days; the daily number was the same as for the previous period, but there was a diminution in area.

ANNIVERSARY MEETING OF THE ROYAL SOCIETY.

The anniversary meeting of the Royal Society was held on Thursday last, November 30, when the report of the council was presented, and Sir J. J. Thomson delivered his presidential address, which included the following statement of the scientific work of this year's medallists:—